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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,549	09/22/2003	Shuji Akiya	KAW-305- USAP	6162

28892 7590 11/02/2005

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EXAMINER	
SEVER, ANDREW T	

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/665,549	AKIYA, SHUJI	
	Examiner	Art Unit	
	Andrew T. Sever	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-9* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 8/12/2005. These drawings are not-acceptable.

It is not clear if the drawing is a replacement or not. If it is a replacement it is not properly annotated as required by 37 CFR 1.84 and 37 CFR 1.121.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aritake et al. (US 6,478,429) in view of Chu et al. (US 5,786,937.)

Aritake teaches in figure 2, a cross dichroic prism for color decomposition, the cross dichroic prism (28) being mounted with a reflection type liquid crystal projector for making a luminous flux from a light source (21) obliquely incident on a reflection type liquid crystal display device (26G), the cross dichroic prism transmitting a green color light component there through and reflecting blue and red color lights components into directions different from each other upstream of the reflection type liquid crystal display device (See figure 3 which shows the paths of the various color lights, although it is a

different embodiment the mirrors of figure 3 would work with regards to the basic light paths in the same way);

The cross dichroic prism comprising a blue-reflecting dichroic film (blue reflective film 29B) for reflecting the blue light component and a red-reflecting dichroic film (red reflective film 29R) for reflecting the red light component;

Wherein the luminous flux from the light source is incident on an entrance surface of the cross dichroic prism at an angle making the luminous flux oblique to an axis of the cross dichroic prism (clearly figure 2 shows the luminous flux making an oblique angle to the axis of the cross dichroic prism and as described in applicant's arguments dated 8/12/2005 on page 6 when viewed from the top (such as the side for red 26R) the light enters the prism perpendicularly and when entering from the side as shown in figure 2 of Aritake it enters obliquely (note that the terms top and side are relative terms and have been reversed by the office from that described in applicant's arguments. See *In re Japikse* 86 USPQ 70 (CCPA 1950))

Aritake, however, does not teach specifically what the structure of the reflective films and what material the prisms are made of. As detailed in the previous office action mailed on 11/19/2004 Chu teaches a similar prism system for making luminous flux from a light source obliquely incident on a reflection type liquid crystal display device.

Chu teaches in column 3 and 4 table 1 what the reflective films making up the dichroic beam splitter are comprised of: lower and higher refractive index materials

alternately laminated on a prism base. The prism satisfies the following condition expression (1):

$$1.105 \leq N_h / N_l \leq 1.450 \text{ if } N_g \leq N_l \quad (1)$$

wherein N_g is the refractive index of the prism base, N_h is the refractive index of the higher refractive index material, and N_l is the refractive index of the lower refractive index material.

Chu further teaches the material that the various parts of the prism are made of: that the base is made of BK7 and the layers are made of Al_2O_3 and ZrO_2 which have index of refractions as provided by the applicant in table 1 of applicant's specification page 22: 1.646 and 1.967 respectively with BK7 having an index of 1.515 (see table 3 of applicant's tables.) This meets expression 1.

Chu teaches in column 1 lines 15-29 and 38-60 that these particular materials allows for easier manufacturing then other techniques while having similar or better optical performance then prior art prisms. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the coatings and prism material of Chu in the cross dichroic prism of Aritake as they allow for easier preparation of the prisms making up the dichroic prism and lower cost.

With regards to applicant's claim 2:

Chu's materials are such that the cross-dichroic prism of Aritake in view of Chu is made up in part of a higher refractive material, which comprises of ZrO_2 and the lower refractive index material comprises of Al_2O_3.

With regards to applicant's claim 3:

Chu's materials are such that the cross-dichroic prism of Aritake in view of Chu has its base made of BK7.

With regards to applicant's claim 7:

Chu teaches both the lowermost and uppermost layers of Aritake in view of Chu's reflecting dichroic films are made of the lower refractive index material (table 1 of Chu.)

With regards to applicant's claim 8:

There are odd numbers of layers.

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aritake in view of Chu as applied to claims 1-3, 7, and 8 above, and further in view of Ho et al. (US 2002/0008770.)

As described in more detail above Aritake in view of Chu teaches a cross dichroic prism with high and low refractive index materials, however they do not teaches using Al_2O_3 and SiO_2 as the high and low refractive index material respectively. Ho teaches a

color separation beam splitter, which in paragraph 29 teaches the use of Al_2O_3 and SiO_2. Such prisms are taught in paragraph 5 and 6 to allow for high-purity and low cost projectors. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Al_2O_3 and SiO_2 in the prism of Aritake in view of Chu.

With regards to applicant's claim 5:

See Chu, which teaches that the bases comprise of BK 7.

Allowable Subject Matter

5. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 8/12/2005 have been fully considered but they are not persuasive.

Applicant argues that the new claim language reads over Aritake, however as amended above Aritake does teach the new claim limitations. Applicant has used the terms "top" and "side" to differentiate applicant's invention from that of Aritake, however the terms

"top" and "side" are relative terms that in order to impart any particular limitation must be defined in the claim. Although applicant defines them in the arguments, applicant does not define the terms "top" and "side" in the actually claims. Accordingly the office has chosen to interpret them to be the opposite sides that applicant interpreted them to be, which as acknowledged by applicant does meet applicant's claim language. Accordingly applicant's argument with regards to "top" and "side" is not persuasive, since it would be obvious to reverse them. See *In re Dailey* 194 USPQ 47 (CCPA 1966) and *In re Japikse* 86 USPQ 70 (CCPA 1950).

With regards to applicant's argument that there is no motivation to combine Aritake with Chu, applicant is pointed to column 1 lines 15-29 where Chu states that prior art film and manufacturing techniques cause more difficult manufacturing and the use of additional films which would obviously increase the cost of manufacturing the prism of Chu as well as that of Aritake. The specific lines of Chu providing this teaching have been added to the above 35 U.S.C. § 103(a) rejection based on Aritake in view of Chu. It should be also noted that it is irrelevant if Chu has the problems solved by Aritake, as Chu is only provided to teach the specific chemical structure of the prism and beam splitter surfaces, not how they are arranged with respect to the other components of a projection system.

Accordingly applicant's arguments are not persuasive and the rejection is made final.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

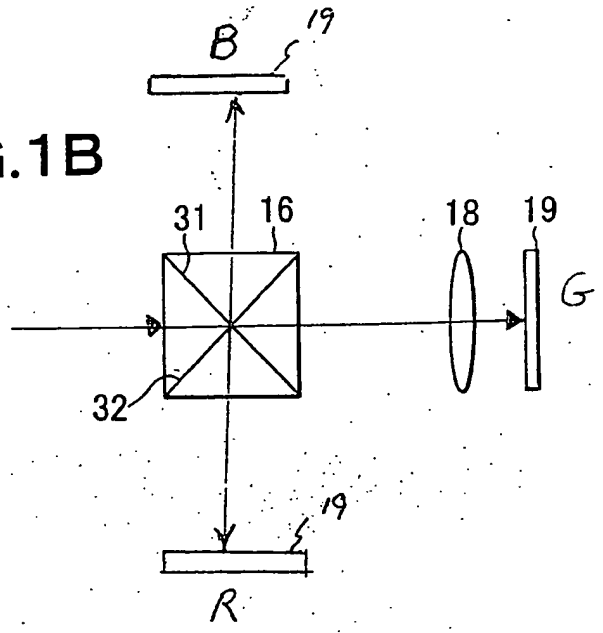
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS

William Perkey
Primary Examiner

FIG.1B



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